# MONTANA

## OUTDOORS

JULY/AUGUST, 1972

FIFTY CENTS

# MONTANA OUTDOORS

THE OFFICIAL PUBLICATION OF THE MONTANA FISH AND GAME DEPARTMENT


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### THE COVER

The front cover, by Danny On, sets the stage for a three-article emphasis on predator control. Although not the only criticized predator, the coyote is certainly the most controversial of western carnivores.

We hope the angler pictured on the back cover, enjoying the serenity of Rock Creek, will be one of the millions of sportsmen to celebrate National Hunting and Fishing Day Sept. 23, 1972. This fishing scene is from the camera of Craig Sharpe.


MONTANA OUTDOORS is published six times each year (January, March, May, July, September and November) by the Montana Fish and Game Department. Unless otherwise indicated, articles found in MONTANA OUTDOORS can be reprinted without permission. Proper credit and a copy of the reprinted material will be appreciated. Contributions (manuscripts or illustrations) are welcome with the understanding that the publisher can not be held responsible for loss or damage. All contributions will be published at the discretion of the editor. Subscription rates are $2 for one year, $5 for three years or 50c per copy. All correspondence should be addressed: MONTANA OUTDOORS, Fish and Game Department, 125 Roberts, Helena, Montana 59601.

Postmaster — MONTANA OUTDOORS is entered as second class mail in Helena, Montana 59601. Additional entry in Bozeman, Montana 59715.


EDITORIAL CREED

To promote the preservation of a livable environment for wildlife, which is a quality environment for man


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July/August 1972
Volume 3, Number 4

editorial

# our stream is dead

Pick a Montana trout stream and name it "our stream." Visualize it as a clean, free-flowing, aquatic ecosystem where many forms of life abound. Then follow its pre-set course on a late July or August day.

As we start down our stream, everything is just the way it should be. Trout are numerous. Deer and other wildlife haunt the banks. Human animals are also there—fishing, hunting, mushroom hunting, camping and picnicking.

As we continue, some of our stream drains from its meandering path into an irrigation ditch along its bank, but there's so much water, it isn't missed. Later, more ditches take more water . . . then more ditches take more water . . . and more . . . and more.

Finally, no more water is diverted because our stream has none to give. Our stream is dead. What's left is a dry, lifeless streambed . . . a defunct ecosystem. Trout take their last breaths in disappearing puddles. Deer, beaver, frogs and other wildlife look elsewhere for water. And mother tries to explain to her children why they can't go to their favorite fishing hole, why the fish are dead, who killed them and why.

But alas, around the next bend are more ditches; this time they return water to our stream. But as the banks re-fill, it's not the same.

The natural system has been broken, cutting the flow of energy and destroying all life forms depending on our stream. The returning water frequently carries pesticides, fertilizers, sediment and other pollutants from the fields and into our stream.

Few, if any, fish can be found. And fewer recreationists enjoy our stream now.

But worst of all, our stream is a reality in Montana . . . not a figment of my imagination. Dewatering for irrigation and agricultural pollution (including siltation) are both serious problems in this state.

Agriculture needs water, and lots of it, to raise crops and livestock . . . a great need of this nation, no doubt. I have no quarrel with that, of course.

My point is this—stricter regulations are needed to prevent overzealous water use and water mismanagement, causing dewatering and agricultural pollution of Montana waters. And even more, fish and recreation must be made "beneficial users" of water. Under the present statutes, trout and recreation have only a questionable right to water.

Some critics of Montana's water law even contend it *encourages* dewatering. I'm not sure of that, but it can be guaranteed it doesn't *prevent* it. And we need a law that *prevents* the devastation of an aquatic ecosystem.

Recently, a water advisory board was formed to recommend legislation to update Montana's water laws. The board is chaired by Gary J. Wicks, director of the Montana Department of Natural Resources and Conservation. Its nine members include five legislators—Sen. Gordon McGowan (D-Highwood), Sen. William Lowe (R-Billings), Sen. Gordon McOmber (D-Fairfield), Rep. Cecil Weeding (D-Jordan) and Rep. Norris Nichols (R-Stevensville)—and four others—William T. Boone (Missoula), Henry Loble (Helena), Hubert White (Townsend) and Wicks.

The legislature has the power to regulate water use. Lawmakers can decide whether or not trout have a right to life or an angler has a right to his sport. And with your participation, comments and letters, you can decide what our legislators do with their power.

For a more exhaustive discussion of Montana's water law and its effect on fish and wildlife, please turn to page 14.—*Bill Schneider.*

*Predator calling takes skill, determination, knowledge and most of all, patience. (F&G photo by Ken Walcheck)*

# CALLIN

## BY KEN WALCHECK

*A wily coyote slinks towards the predator caller who is armed with only a camera. (F&G photo by Ken Walcheck)*

THE COVER STORY

# G ALL PREDATORS

## this sport may be one answer to the predator control controversy

It was early morning on a cold, bone-chilling February day when Charlie and I positioned ourselves in a patch of silver sagebrush. We hoped to coax in a coyote with a dying-rabbit predator call. I finished the necessary camera adjustments, and Charlie put the call in his mouth and blew out an experimental string of harsh, squally squeals and moans. He waited a minute, then gave out a long wailing series, putting as much pain, fright and urgency as he could into the performance. The call's quavering sounds brought to mind a squealing cottontail, struck but not killed by a great horned owl.

To be a successful caller, you must mimic a rabbit or bird that is really hurt and dying a slow death—the first loud, long squeal of terror and pain, the short moans and finally the last dissipating whimper.

How good are a caller's chances? Under normal conditions and in average country, the caller does well to bring in a predator once with every five to eight attempts. Unsuccessful tries are sometimes offset by the times you score above par.

Federal predator control activities have declined since the use of all chemical toxicants has been prohibited on public lands (except Indian trust lands) and the interstate shipment of predator poisons banned. In some areas of Montana and other western states, the rancher has found an ally who is willing to help without charging a cent—the predator-calling sportsman.

A questionnaire survey, conducted by the Advisory Committee on Predator Control and sponsored by the Council on Environmental Quality and the Department of Interior, found that sport hunting for predators is growing in popularity. Practically every state reported some sport hunting for predators, but in some states it was very limited or restricted to one or two species, like fox or raccoon. However, in 28 other states, including Montana, predator hunting was quite widespread. All 50 states responded to the 1967-68 hunter questionnaire. Reports indicated 84,900 coyotes and 45,900 bobcats were taken in California that year by predator calling.

This sport seems to be growing faster in the West since several eastern states reported no increase in predator hunting. Only three states west of the Mississippi River—Nebraska, South Dakota and New Mexico—said this type of hunting did not appear to be increasing.

Predator calling associations are also quite popular in many states. Although callers have been in existence for many years, they usually worked in small, uncoordinated groups of two or three.

Today, some associations have become quite sophisticated. The Big Country Varmint Callers Association in Abeline, Texas is one example. This organization was formed to give reliable hunters new hunting opportunities and to assure ranchers the sportsmen would be responsible in their outdoor activities.

The club's by-laws support good sportsmen-landowner relations. The landowner's permission must be obtained before hunting. Most hunts, however, are at the landowner's invitation. Proper hunter safety rules, including trash removal, must be obeyed. The hunters report to the landowner on the success of the hunt and the club abides by his decision concerning disposal of the predator. The association also maintains a protective insurance policy for accidental damage to property and livestock by any member.

This type of organization gives callers and ranchers a reciprocal benefit and, as a result, off-

## CALLING ALL PREDATORS continued

sets the bad image some irresponsible hunters have given sportsmen as a whole.

How successful will you be if you try this growing sport? A predator call will produce results, often spectacular and dramatic, if the opponent's felicity is taken into consideration. The beginner's foremost mistake is underestimating the predator. Coyote, fox and bobcat possess a strong survival instinct; not even extreme hunger will make them disregard danger. A haphazard and careless caller can never outwit a predator.

The hunter must know something about his quarry and how to counteract its basic lines of defense. The most meticulous preparation and planning is useless if no predators are in the area. Habitat and food are factors that dictate the abundance of predators and all other wildlife, so careful selection of a calling site is a necessity. Scouting a potential calling territory accomplishes more than determining whether predators are present. It also gives the caller a chance to learn the lay of the land. He can select the best calling area and formulate some sort of hunting plan.

Most callers are concerned with getting the correct tone from their calls and spend too much time trying to master the sound. Experienced callers agree the tone and pitch of a call are not that important. Of the successful callers I have heard, no two used exactly the same series and tones. With experience, each hit upon a productive formula and stayed with it, making sure the tone quavered. This quaver can be added with the mouth or by fluttering cupped hands over the end of the call.

One can perfect a call by spending some time with an experienced caller and listening to readily available commercial instruction records. With just a little practice at home, a hunter can have a sound that would beguile any predator.

Electronic calling devices are used by some callers but aren't too popular for several reasons. They are expensive and difficult to carry to the calling site. Some callers think background noise on the tape or record lowers chances for success. And others contend that if you are interested enough to try this sport, you should know the thrill of doing it "on your own."

The selected calling sound should be a close imitation of the predator's food source. In some habitats, for example, a call with a coarse tone, representing a jackrabbit, is more effective than the imitation cries of a cottontail. The cottontail

*The bobcat seems more vulnerable to the predator hunter's call than the coyote. (F&G photo by Charlie Eustace)*

call works best when the smaller rabbit is the predominant food source. Raccoons, in comparison, feed more on birds than on rabbits, so the shrill of a bird in distress will be more effective on this animal than the dying-rabbit call.

There is no assurance a caller will always attract the animal he wants. One caller, for example, tells of an interesting encounter he had when he tried to call up a fox from an abandoned farmhouse. After he squealed a couple of times on his caller, a skunk, with battle flag hoisted and ready for action, came tearing around the corner. The caller readily departed in the opposite direction.

Because of the sensitive smelling apparatus of most predators, calm or mild breezy weather is the best time for calling. Under ideal conditions, a call will travel for more than one-half mile in all directions. The specific call, the terrain and wind velocities all effect the call's range. In windy weather, the sound carries where the caller does not want it to go—downwind. Experts agree that predators, especially the coyote, will not come in against the wind.

Although predator calling is classified as a year-around sport, some seasons are better than others. Many fox and coyote callers consider October the best month. Predators seem to respond best from three hours before sunset until dark. In a scientific study designed to evaluate and develop fox calling as a hunting technique in Minnesota, two investigators found 60 per cent of all successful calls fell within this period.

Each predatory species responds characteristically to a call. Foxes, raccoon and coyotes usually respond the fastest—in 10-15 minutes. The bobcat, however, is much more deliberate, sneaking and stalking towards the caller instead of running in like a fox or coyote. A bobcat may not appear for 30 minutes. Many callers don't see their predator because they quit their stand too early. Patience is an important requirement of this sport.

A predator caller should not repeatedly hunt in the same area. Ideally, an area should be rested for several months after a calling session. Once a predator is fooled by a call, even the most provocative invitation will not bring him in a second time. To counteract this suspiciousness, change calls on a second visit to the same area.

Kenneth C. Walcheck, 40, is the department's District Information Officer in Miles City. The Wisconsin native received Bachelor of Science degrees in biology and wildlife conservation from Wisconsin State University, Stevens Point, and a Masters degree in applied science (ecology) from Montana State University, Bozeman. Walcheck is a former assistant professor of biology at Northern Montana College in Havre.

## predator hunting may be the only "control" method acceptable to everyone

A bird-in-distress call might fool a predator that shrinks away from a dying rabbit's squeal.

Opponents of predator control sometimes maintain that coyotes are an endangered species because of the control methods employed. The available evidence does not support this contention. Despite man's best efforts to eradicate the coyote with everything from virulent poisons to highly sophisticated traps, the wild canine has not only survived, but has thrived and greatly expanded his range in certain areas. An examination of specific control methods used in the past also points out that certain techniques decline in effectiveness as time passes. Government trappers point out that "coyote getters" (a device that expels cyanide crystals into the mouth of an animal which tugs at the bait) declined in effectiveness within a decade of their introduction. The decline has been attributed to a coyote behavioral adaptation.

Similarly, does the chemical toxicant 1080 materially influence coyote densities in some areas? The 1971 Predator Control Report, better known as the Cain Report, states, "In such states as Idaho, Wyoming and Utah, the post-1940 population may have been reduced to no less than one-half or one-third of the previous density. Since that reduction, it would appear the populations have achieved a new equilibrium and fluctuation within new limits at these lower densities."

It seems selective breeding has made the coyote a bit more cautious and stealthy and this trait is being passed on to new generations. It takes a special kind of hunter to outwit coyotes and other predators. Patience and perseverance, not to mention a little human cunning, will help bring in the prize.

# PREDATOR CONTROL CONFUSION

**MANY RECENT DEVELOPMENTS ON THE PREDATOR CONTROL SCENE HAVE CAUSED CONSIDERABLE CONFUSION. HERE ARE SOME FACTS AND THE OFFICIAL DEPARTMENT POSITION ON THIS CONTROVERSIAL CONSERVATION ISSUE.**

By Bill Schneider

Illustrated by Vern Craig

Predators, truly creatures of controversy, have recently focused the national spotlight on the rights and wrongs of animal control. The furor has reached a point where unrefutable facts only confuse the issue and emotion seems to be the word of the day.

On one end of the control dispute are those who abhor the thought of killing any animal—even a deer during hunting season or a coyote that habitually preys on sheep. On the other end are those who would purposely annihilate all predators and would celebrate the day when the last coyote was poisoned and the last eagle crash dived from western skies.

Luckily, the vast majority of those interested in predator control stand somewhere in between these two extreme factions.

### predators and livestock

Even extreme preservationists agree that predators do occasionally prey on domestic livestock. The problem here is no one knows how much.

Some ranchers, and especially woolgrowers, have been accused of exaggerating predator losses. Questionnaires are sometimes sent to ranchers asking them to "estimate" their losses. So the opportunity to pad their losses for increased tax deductions and to show a need for continued predator control is indeed there. How much it's used is not known.

A major difficulty in determining the economic effect of predation is determining if the predator made the kill or if it just happened onto a dead lamb or calf and decided on carrion for supper. Ranchers often see a predator feeding and logically assume it made the kill. Most, if not all, carnivores will feed on carrion, so some predators are undoubtedly persecuted for a harmless act deeply embedded in natural instincts.

Researchers also find this a stumbling block. They may examine stomach contents or eagle pellets and find evidence of domestic livestock but have no way of knowing if the remains are from a live kill or from carrion.

If the economic impact of predators on livestock producers could be documented in $-signs, the entire predator puzzle could be more easily pieced into an acceptable solution.

### predators and wildlife

Traditionally, it was thought predators restrained wildlife populations and the absence of carnivores would, in turn, create a wildlife paradise.

Today, that hypothesis is generally not believed. Many research projects have shown predators don't limit prey populations, but rather the prey limits the predator.

"You know, Sam, we had better do something about this predator control thing before it's too late."

Predators tend to keep prey populations vigorous and healthy by removing weak, sick and old animals. Not that predators have any great inherent medicinal qualities—they are simply nature's opportunists. Predators take the "unfit" because they are the easiest to catch, and for that reason only.

Carnivores (large and small) not only have a useful role in natural wildlife systems, they may very well be essential in some animal communities.

### new developments

Because of the widespread misuse of chemical toxicants and the illegal killing of eagles, many recent attempts have been made to resolve the "predator control problem" . . . a situation which sometimes seem insolvable.

In April, 1971, Interior Secretary Rogers C. B. Morton named a blue-ribbon study group to investigate the entire animal control situation. He took that action after a tidal wave of emotion swept the nation, a reaction to the now famous Wyoming eagle slaughters of last year.

A Senate subcommittee hearing called by Sen. Gale McGee (D-Wyo.) started the wave of emotion. At that hearing, helicopter pilot James O. Vogan, testifying under immunity of federal prosecution, spun a grisly tale of needless wildlife slaughter. According to Vogan, at least 565 bald and golden eagles were shotgunned from Wyoming skies in a seven-month period and many were downed over public land. He also told of bear, elk and antelope killings.

Vogan's testimony included the unforgettable comment, " . . . a regular haystack of dead eagles . . . ", referring to the aerial shootings' end result.

Precluding that incident and setting the stage for the widespread public reaction (some say it's an overreaction), was what Senator McGee labeled "The Massacre of Jackson's Canyon." Apparently, 23 golden and bald eagles were illegally poisoned in the canyon (12 miles southwest of Casper, Wyo.). Most reports on the incident verified that the hapless eagles tore their last meal from antelope carcasses illegally taken and laced with a super-poison, thallium sulfate. Ironically, interstate shipment of that predator poison had already been banned by the Environmental Protection Agency (EPA).

In January, 1972, Morton's study team, composed of seven highly qualified professionals (Stanley A. Cain, Durward L. Allen, John A. Kadlec, Maurice G. Hornocker, A. Starker Leopold, Richard A. Cooley and Frederick H. Wagner), had these recommendations (called the Cain Report) for the President:

*—individual state legislation to ban the use of toxicants for predator control.*

Some believe the anti-hunting and anti-predator control interests are pooling their powers.

## CONFUSION continued

*—establishment of extension trapper programs to aid landowners in "minimum necessary" predator control on private lands.*

*—continuance of federal-state cooperation in predator control.*

*—predator control funding from Congress and state legislatures.*

*—employment of professional wildlife biologists capable of administering a broad-based predator management program for the Division of Wildlife Services. (The DWS is the section of the Interior Department's Bureau of Sport Fisheries and Wildlife responsible for animal control.)*

*—reimbursement for livestock producers with an economic burden because of heavy losses to predators.*

*—suspension or revocation of grazing privileges on federal lands for violating predator control regulations.*

*—prohibition of "all" predator control in wilderness areas (land designated as "wilderness" under the Wilderness Act of 1964).*

*—prohibition of aerial shooting except in "exceptional cases" and then only by qualified wildlife biologists. (The President signed this into law on Nov. 18, 1971.)*

*—suspension or revocation of private pilot licenses by Federal Aviation Authority for knowingly carrying a passenger involved in illegal predator control (i.e. shooting or poison distribution).*

*—a detailed socio-economic study into the cost-benefit aspect of predator control.*

*—passage of more state laws to supplement federal protection of rare and endangered species.*

Shortly after the Cain Report, President Nixon's 1972 Environmental Message contained an executive order that put a speedy and complete end to the use of toxicants for predator control on federally owned lands.

Following the President's order, Secretary Morton said his department also "meant business" and was removing poisons from public lands "as soon as possible." He even went a little further and shut off the use of poisons for rodent control on public land.

Morton said his agency was "moving ahead with administrative and legislative remedies to correct a situation that needs reform." Now, the federal officials' "remedy" has been hustled into congressional halls. It's called the Federal Animal Control Act of 1972. That proposed act would take the federal government out of the messy animal control business in three years and hand the smoldering torch to the states. It would also repeal the Predator Control Act of 1931. Most involved persons think the act will indeed pass.

Then we, the states, will have the ball. This department, other state agencies and many private organizations and individuals are presently trying to unscramble the jungle of ideologies and come up with a solution. Out of necessity, a decision will be reached shortly.

**Predator calling seems to be a widely accepted control method that provides some excellent outdoor recreation as a fringe benefit.**

Rodent control is of special concern because of the high reproductive potentials for which these animals are famous. Ranchers are getting mighty nervous about rodent populations on their land. Some think the pesky little mammals will drive them out of business if poison isn't used for control. However, scientific studies on livestock-rodent competition for forage don't verify that assumption.

Federal directives on animal control have confused the issue somewhat and don't clearly state that 1080, cyanide and strychnine can still be shipped across state lines for rodent control on private lands. Only thallium sulfate has been completely banned. Some agriculture interests thought all poisons had been outlawed. That is not so.

However, EPA's Denver representative, Gary Hanson, put it on the line and said if the allowable rodent poisons were used on predators, "in my opinion," the EPA will ban their use altogether, the same as thallium sulfate.

Predator poisons and rodenticides (often the same toxicant) were formerly distributed to Montana's agriculture industry by a depot in Pocatello, Idaho. That distribution point was recently closed, an action that threw Montana livestock interests into a flurry.

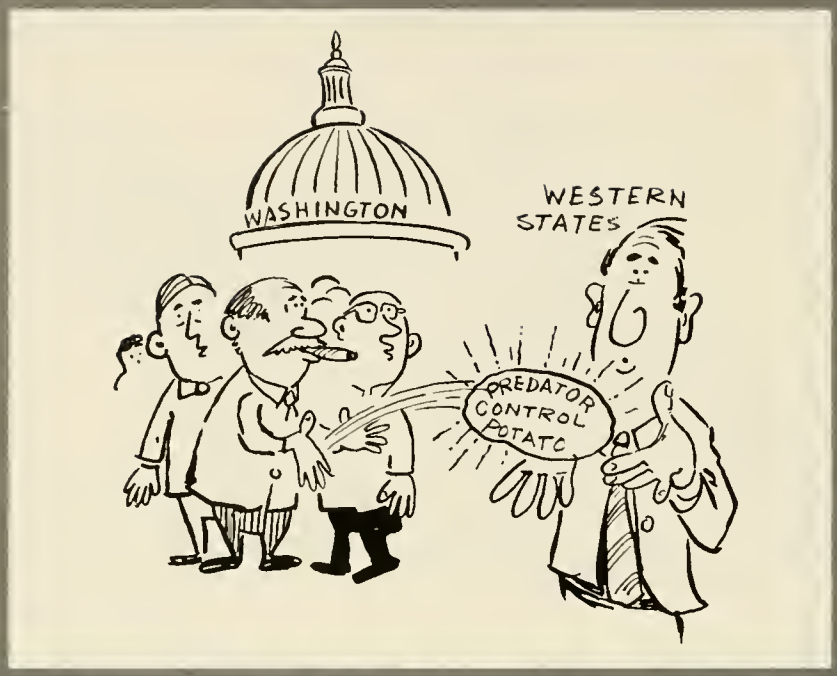
Although the use of rodenticides on private land was still "legal," the poisons weren't available. So Governor Anderson handed Gary Gingery, director of the Pesticide Control Division of the State Department of Agriculture, a two-pronged directive. Gingery was ordered to find an immediate source of strychnine baits and establish a temporary distribution system throughout the state. He found that chore quite difficult because many poison manufacturers are holding back and predicting more federal restrictions.

Gingery was also directed to chair a committee of the four involved state agencies (Department of Health and Environmental Sciences, Livestock Commission, Department of Agriculture and the Fish and Game Department) and several private individuals.

Governor Anderson asked the committee to (1) consider the establishment of a centralized, rodenticide mixing plant, (2) consider procedures for controlling the sale and use of such products in the state and (3) determine alternatives to chemical control.

Now that, hopefully, some confusion has been cleared away, these truisms stand out:

1. **No chemical toxicants can be used on public (federally owned) land for rodent or predator control.**
2. **Poisons (except thallium sulfate) can be used for rodent control on private land.**
3. **Thallium sulfate cannot be used or shipped across state lines for either rodent or predator control.**




If legislation in Congress passes, the responsibility for predator control will be transferred to the states.

## CONFUSION continued

4. No chemical toxicant can be shipped across state lines to be used for predator control.
5. A newly formed committee is preparing proposed legislation that will allow the state to take over the animal control business from the federal government.

### our position

But how does your Fish and Game Department figure in all this?

Governor Anderson has directed us, with the other departments, to provide "expertise and assistance" in developing a long-range program and alternatives to chemical control.

We view that as a big order and plan to do everything within our power to meet it, but it won't be done overnight. It will take months and probably years to free animal control from the conveniences of chemical toxicants.

On the next page is the Fish and Game Department's official position on animal control. This statement was prepared by Jim Posewitz, chief of the department's Environment and Information Division, and presented at a predator and rodent control meeting April 21, 1972. It makes these basic points:

**(1) We are striving for a completely new look at the animal control situation, not simply a way to return to business as usual.**

**(2) We won't recommend overnight withdrawal from the use of poisons but will gradually make the transition to a control method most acceptable to all concerned parties.**

**(3) We feel predators have an acceptable place in the wildlife community and control is probably not necessary to maintain abundant game populations.**

**(4) We recognize that predators, habitually preying on domestic herds and flocks, must be removed in the most acceptable and preferably non-lethal method.**

In addition, we take these official positions:

**(1) We feel non-lethal and repellent control methods may be the answer if they can be perfected.**

**(2) We feel that although the sheep industry is indeed caught in the cost-price squeeze, increased attention from the woolgrower, his herders or trained dogs would eliminate many predator losses.**

**(3) We will seriously investigate and probably condone an insurance-reimbursement system which will cover predator losses suffered by the livestock industry. The system, should it be enacted, will only work if an accurate method of "proving" the animal was indeed killed by the predator is discovered.**

As a state agency, we have a moral and legal obligation to preserve the fish and wildlife resource. Our decisions, suggestions, recommendations and policies concerning animal control will be made with that obligation in mind.

FISH AND GAME DEPARTMENT POSITION

# ANIMAL CONTROL

by Jim Posewitz

The Montana Fish and Game Department has been involved in animal control programs for considerable time, as a participant in wide and general control programs, as a skeptical contributor and, in some cases, as a critic of what animal control programs have become.

It is our sincere hope we are assembled here today to acknowledge that there is a problem and to seek an entirely new attitude toward animal control, not simply to seek a way to return to business as usual. Business as usual in the field of killing animals is, quite clearly, no longer acceptable to most American people.

In recent years we have observed a most revolutionary change in attitude on the part of the general public, not only toward the poisoning of animals, but also toward man's entire relationship with his natural environment. In regard to animal control programs, this change of attitude led to a typical or classic "environmental versus economic" confrontation—a confrontation that, I am sure, many of you view as an unwarranted overreaction.

On a national level it has resulted in a program that is taking the federal government out of the animal poisoning business, and if pending legislation is passed, out of the animal control business altogether after a brief transition period. Most of the prognosticators are predicting the pending legislation will, in fact, pass. If this is an overreaction, it was brought about by the practice of attacking every unwanted plant or animal with the most lethal chemical available—in some cases with the intent to annihilate an entire population or an entire species if possible.

Over the past few years we have had an opportunity to view and participate in a variety of environmental confrontations. They ranged from conflicts over the development of a single mine to conflicts over entire programs. Invariably these confrontations are resolved through some sort of environmental and economic accommodation. Finding this area of accommodation in regard to predator and rodent control is going to be most difficult.

Environmentalists must recognize, and I think they do, that we are not going to withdraw overnight from the chemical conveniences to which predator and rodent controllers have been accustomed. On the other hand, environmentalists hope that farmers and stockmen recognize we will never return to the unrestricted chemical control of every plant and animal representing a nuisance or an economic handicap.

The question is no longer how to kill, sterilize or otherwise simplify the ecosystem for our convenience, but how we can arrive at an accommodation between making a living from the land and totally disrupting Montana's natural systems. Montana never was and never will be a simple sea of grass or other simple monoculture. It is, instead, an infinitely diverse ecosystem that derives its strength from its diversity with all plants and animals belonging to, taking from and contributing to its stability. Attempts to oversimplify those commodities we value most threaten that diversity and, consequently, the strength of natural systems.

The imbalance we have created can only be maintained by a practice that is suddenly unacceptable in the field of wildlife management. At one time it was thought that predator control was not only beneficial, but in some cases necessary, to the maintenance of abundant game populations. That particular belief has been repeatedly examined and reexamined over the years. The preponderance of evidence indicates that predators have an acceptable and proper place within all animal populations; they are not only tolerable but, very likely, essential members of any animal community.

By the same token, we readily recognize that the relationship between domestic stock and predatory animals is not the same as the relationship between predators and wild animal populations. We further recognize that individual animals, habitually attacking domestic stock, must be removed.

To accomplish this end, the Fish and Game Department pledges its cooperation, while urging that we diversify the program to end our dependence on chemical control of any animal population.

# Thinking Like A Mountain

by Aldo Leopold

EDITOR'S NOTE: I only wish everyone who enjoys the agony of a dying eagle or advocates a ban on sport hunting could read these few words by Aldo Leopold. More likely, the readers of these two pages have already denounced extermination-oriented predator control and have disagreed with restrictions on hunting that subsequently cause wildlife overpopulations, years of slow, agonizing starvation, mass die-offs and devastated winter range.

If you agree with what Leopold writes, remember his words and have them ready for those who don't. But whether you agree or disagree, please appreciate the fact that today his message is backed by carefully collected management data. When he wrote this, it wasn't.

Special thanks to Oxford University Press for allowing us to reprint the following.

A deep chesty bawl echoes from rimrock to rimrock, rolls down the mountain, and fades into the far blackness of the night. It is an outburst of wild defiant sorrow, and of contempt for all the adversities of the world.

Every living thing (and perhaps many a dead one as well) pays heed to that call. To the deer it is a reminder of the way of all flesh, to the pine a forecast of midnight scuffles and of blood upon the snow, to the coyote a promise of gleanings to come, to the cowman a threat of red ink at the bank, to the hunter a challenge of fang against bullet. Yet behind these obvious and immediate hopes and fears there lies a deeper meaning, known only to the mountain itself. Only the mountain has lived long enough to listen objectively to the howl of a wolf.

Those unable to decipher the hidden meaning know nevertheless that it is there, for it is felt in all wolf country, and distinguishes that country from all other land. It tingles in the spine of all who hear wolves by night, or who scan their tracks by day. Even without sight or sound of wolf, it is implicit in a hundred small events: the midnight whinny of a pack horse, the rattle of rolling rocks, the bound of a fleeing deer, the way shadows lie under the spruces. Only the ineducable tyro can fail to sense the presence or absence of wolves, or the fact that mountains have a secret opinion about them.

My own conviction on this score dates from the day I saw a wolf die. We were eating lunch on a high rimrock, at the foot

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(From *A Sand County Almanac with other essays on conservation from Round River* by Aldo Leopold. Copyright © 1949, 1953, 1966 by Oxford University Press, Inc. Reprinted with permission.)

of which a turbulent river elbowed its way. We saw what we thought was a doe fording the torrent, her breast awash in white water. When she climbed the bank toward us and shook out her tail, we realized our error: it was a wolf. A half-dozen others, evidently grown pups, sprang from the willows and all joined in a welcoming melee of wagging tails and playful maulings. What was literally a pile of wolves writhed and tumbled in the center of an open flat at the foot of our rimrock.

In those days we had never heard of passing up a chance to kill a wolf. In a second we were pumping lead into the pack, but with more excitement than accuracy: how to aim a steep downhill shot is always confusing. When our rifles were empty, the old wolf was down, and a pup was dragging a leg into impassable slide-rocks.

We reached the old wolf in time to watch a fierce green fire dying in her eyes. I realized then, and have known ever since, that there was something new to me in those eyes—something known only to her and to the mountain. I was young then, and full of trigger-itch; I thought that because fewer wolves meant more deer, that no wolves would mean hunters' paradise. But after seeing the green fire die, I sensed that neither the wolf nor the mountain agreed with such a view.

Since then I have lived to see state after state extirpate its wolves. I have watched the face of many a newly wolfless mountain, and seen the south-facing slopes wrinkle with a maze of new deer trails. I have seen every edible bush and seedling browsed, first to anaemic desuetude, and then to death. I have seen every edible tree defoliated to the height of a saddlehorn. Such a mountain looks as if someone had given God a new pruning shears, and forbidden Him all other exercise. In the end the starved bones of the hoped-for deer herd, dead of its own too-much, bleach with the bones of the dead sage, or molder under the high-lined junipers.

I now suspect that just as a deer herd lives in mortal fear of its wolves, so does a mountain live in mortal fear of its deer. And perhaps with better cause, for while a buck pulled down by wolves can be replaced in two or three years, a range pulled down by too many deer may fail of replacement in as many decades.

So also with cows. The cowman who cleans his range of wolves does not realize that he is taking over the wolf's job of trimming the herd to fit the range. He has not learned to think like a mountain. Hence we have dustbowls, and rivers washing the future into the sea.

We all strive for safety, prosperity, comfort, long life, and dullness. The deer strives with his supple legs, the cowman with trap and poison, the statesman with pen, the most of us with machines, votes, and dollars, but it all comes to the same thing: peace in our time. A measure of success in this is all well enough, and perhaps is a requisite to objective thinking, but too much safety seems to yield only danger in the long run. Perhaps this is behind Thoreau's dictum: In wildness is the salvation of the world. Perhaps this is the hidden meaning in the howl of the wolf, long known among mountains, but seldom perceived among men.

MONTANA'S WATER LAW:

# *Irrigation or*

by Cecelia Huls

A living stream abounds with the sounds and motions of life. Trout spawn in the clear, cool water. Anglers bring their families and spend the day on the banks, fishing, camping and building family ties. Hunters and bird watchers also gather there.

When a stream dies, the sounds of life and activity disappear. Silt settles in the once clear streambed and trout look elsewhere for spawning grounds. The trout are gone and the fishermen and their families soon follow. The hunters disappear, along with the waterfowl and other wildlife. Nothing stirs in the streambed, not even the water. Most of that is gone, too . . . diverted from the stream's natural channel onto agricultural fields.

For the past 20 years, most legislative sessions have seen bills to give fish and recreation a legal right to use Montana water without diversion or development. These bills are periodically introduced by Sen. Harry Mitchell (D-Great Falls) and are strongly supported by the Fish and Game Department. They are also periodically defeated.

In February 1972, the Montana Constitutional Convention's Natural Resources Committee unanimously adopted a water rights provision that protected Montana's water for agriculture, industry *and trout.*

The provision confirmed all existing water rights and protected industrial and agricultural users. But for the first time, recreation, scenic waterways and wildlife habitat were listed as "beneficial uses" of water. Other interests wouldn't have lost any of their rights, but according to delegate C. B. McNeil (R-Polson), the provision allowed "trout to stand in line with the rest." Later that month the provision fell under heavy fire from water development interests and was dropped. The recent defeat was not the first time fish and recreation took a back seat to industry and agriculture.

But the department did win a minor skirmish in 1969. That year a bill passed that gave the Fish and Game Commission the right to appropriate all unappropriated water in parts of 12 Montana streams. The department received a "junior" right to use the water for fish and wildlife. Trout could use the water left in these streams until future agricultural and industrial needs were deemed more important.

All 12 sections are prime trout fisheries in areas without extensive development. The law's passage was a moral lift but not much of a victory. It was, however, an important start.

In desperation, the department has even tried to buy water. In 1958, we contributed $100,000, the Western Montana Fish and Game Association donated $5,000 and the Ravalli County Sportsmen gave $500 to buy in perpetuity 5,000 acre-feet of water per year in Painted Rocks Reservoir on the west fork of the Bitterroot River. The department helped pay for the water with sportsmen's dollars to secure a legal right to it. The idea didn't work well in practice, however. The Bitterroot River dried up in late summer anyway. Water released for fish was adversely diverted from the stream and used for irrigation. The department could not keep its water in the stream because diversion is a requirement of "beneficial use" in Montana.

Theoretically, the water was there to be had, but in practice it was not. The only fish habitat improved by this water purchase was in the West Fork, an area with no irrigation diversions.

## first in time, first in right

Most of Montana's water law grew out of the use of water for mining. The law can best be described as "first in time, first in right." To have a right to the water, the use must be beneficial and involve diversion. The person that made the first beneficial use of the water (or his later generations) has the first right to it. Trout and recreation don't qualify as "beneficial uses" and since there is no diversion, they have no right to water. Trout need the water in the natural streambed, not in some diversion.

When water rights are adjudicated (the

# *Recreation?*

It's a cinch Montana's water law received no votes from trout.

*(F&G photo by Dave Wedum)*

**MONTANA'S WATER LAW:** continued

various water users presenting their contentions to the court), a decision is made as to who has the right to use the water and what the stream's top priorities are. Priorities are awarded to the various users in accordance with the time each made his first beneficial use. But adjudication is merely a temporary "quick freezing" of rights. Any person left out of the original case or entering the area later can bring the matter back to court again.

If no court action has ever been taken on a stream, there is no legal, lawful regulation of it. A "use" right is an appropriation on an unadjudicated stream obtained by merely using the water. In streams like the Little Blackfoot River, people simply take and use the water, beneficially of course. Some rivers and streams in the state have been adjudicated with water rights reaching back to the early 1860's, but most streams have not.

Under the old law, no one *owned* water in Montana. A water right granted the privilege to use water, but if the water couldn't be used beneficially at the time it was available, it had to flow downstream to other users and sometimes other states.

However, the state's new constitution changed all that. Article IX, the Environment and Natural Resources, Section 3, states that all waters within the state "are the property of the state for the use of its people."

This section was included so downstream users couldn't appropriate presently unused water and stop future development in this state. Suppose a downstream state has accurately determined its water needs and how much water it is presently using. That state could appropriate "X" number of acre-feet of water in a river for its use. Montana would have no right to that water in future years and any possible in-state development with heavy water needs would be stymied.

Many compete for Montana's water. Private irrigation districts, the U.S. Government, the State of Montana, the Fish and Game Commission, cities and towns and countless individuals all want to use the water in the state's streams.

The state's Supreme Court has held that a city, simply because it is a city, doesn't have a greater right to the water than an individual farmer or rancher. The U.S. Government has to file for water rights just like any citizen. Agricultural irrigation, mining, domestic, industrial and power uses are recognized as "beneficial" uses but as the law now stands, recreation and fish have no legal claim to water flowing in streams.

Early laws measured moving water in miner inches. According to Montana regulations, 40 miner inches equal one cubic foot of water per second. Each user is required to measure the water as it is diverted from the stream. This is rarely done, at least not accurately. And most streams in Montana are over-appropriated on the written record. People have filed for more water than they actually use and the total is often more water than the stream has to offer. Frequently, users demand all the water in the stream; it dries up and fish die.

The former system had several serious drawbacks. Because of the confusion and apparent over-appropriations, everyone's future demands couldn't be met. The new constitution solves part of the problem. It puts the legislature in charge of administration, control and regulation of water rights and sets up a system of centralized records in addition to the present system of local records. But the new document fails to specifically recognize fish and recreation as beneficial users without diversion.

The department's fisheries division lists defending and reclaiming trout habitat as its number one objective. Other division goals include maintaining the natural, physical stream channel and insuring water quality and quantity.

Although water regulations clearly forbid water waste, many uses are nevertheless very wasteful. At a symposium on the state's water law in Missoula in June 1971, attorney Henry Loble (now on the Water Advisory Board, see editorial, page 1) listed flood irrigation's efficiency as 20 per cent or less, which means 80 per cent or more of the water was wasted. Most of the state's water goes for irrigation, and most irrigation is done by diverting the water into ditches and onto fields and pastures. Sometimes, streams are totally diverted, leaving a dry, lifeless streambed.

The department calls this dewatering and takes issue with the practice. We contend fish have a right to life and Montanans need the recreational opportunities provided by living streams. Totally diverted water occasionally flows back into the streambed further downstream. It brings with it silt, pesticides and fertilizers, none of which are good for trout.

## an aquatic pyramid of life

In a streambed, life can be likened to a pyramid, with basic nutrients on the bottom-most level. These minerals and elements are present in the water and support primary, microscopic life forms like algae and protozoa. Life becomes more sophisticated on upper levels of the pyramid. More specialized plant life supports insects and small fish and these, in turn, feed larger fish. Fish-eating animals (including man) hold the top-most level of the pyramid.

When pesticides wash into the water from irrigation ditches, they may destroy microscopic

stream life. This ends the flow of energy through the aquatic life system, so trout either die or move on.

Excessive fertilizers have the same final effect, but they accomplish it in a different manner. Increased chemicals and fertilizers in the water increase the nutrient and productivity level of the water. The chemicals act like they would on agricultural fields, promoting plant growth. The stream blooms with vegetative growth, but when plants die, decomposition robs the water of much of its oxygen and, in extreme cases, produces poisonous hydrogen sulfide gas ($H_2S$), killing fish and much other aquatic life.

In addition to pesticides and fertilizers, silt from agricultural fields flows into the stream with the returning water. The former, productive agricultural land settles on the streambed bottom, coating and sterilizing trout spawning areas.

For these reasons, the department supports sprinkling as an alternative to flood irrigation. Although initially expensive, sprinkler irrigation is very efficient. The system distributes water more uniformly than any other method and can control erosion, conserve water, reduce drainage problems and prevent stream dewatering.

Sprinkling also adapts to most soils. This method doesn't require destructive land preparation, field ditches or levees. Sprinkling works in areas with little surface water because small amounts of moisture can be distributed over large areas. The amount of water applied can be controlled according to the needs of a given crop. The cost of operation discourages water waste through over-irrigating, an action common in flood irrigation.

The system has other diverse uses. Fertilizers and herbicides (if they must be used) can be sprinkler-applied and specially designed systems can curb heat and frost damage to crops.

The department would like to see all irrigation farmers switch to sprinkler systems. If this is not possible, consolidation of diversions and delivery systems would be a welcome second. But even more important, the definition of "beneficial use" must be expanded to include fish and recreation without diversion requirements.

Investigations by the Montana Department of Natural Resources show the total water rights for many Montana streams far exceed the existing water supply. This comes from the "be sure you take enough" filing practice, in anticipation of adjudication, instead of one comprehensive, administrative system.

The constitution's new system offers new protection for present water users because tangible evidence (a permit) of the right to use water will be recorded in one safe, accessible place.

Permits indicate the date of priority, volume of water and nature of use. The system also provides for abandonment of unused water rights and helps keep water right records up-to-date.

Dr. Verne House, Extension Service public affairs economist at Montana State University, Bozeman, says the permit system shifts the cost of water administration from the judicial to the administrative branch of government. Costs come from the state budget but are offset by a reduction in court expenses.

House conceded the net public cost of the new system will be greater in the short run but added that in the long run Montana would experience a much greater cost without a permit system. Inefficient administration, lost opportunities for development and wasted water and wildlife also cost.

The chief of the department's Environment and Information Division, Jim Posewitz, says, "The trick is not in developing a complete water system for the state or even in serving all the different users. It's getting Montanans to see the faults in our water law and to accept a system that doesn't have the blessing of past generations." He added the Fish and Game Department supports any water law change that makes the system more manageable and more receptive to recreation and wildlife needs.

Agriculture needs water, we agree, but not all of it. The needs of recreation and wildlife are not compatible with dewatering and the subsequent devastation of an aquatic ecosystem and a trout fishery.

Recreation is, after all, the state's fourth largest industry, and ever-increasing leisure time will push the American public's demand for outdoor recreation even higher in the future. An estimated $145.5 million is spent in the state each year for hunting and fishing licenses, sporting equipment, lodging and meals. (This figure doesn't include travel expenses.) Outdoor recreation is big business in Montana. Eyebrows would lift if the millions this industry pours into the state's economy vanished because all the water in many of the state's streams disappeared or became unfit for fish.

But economics aside, the most relevant value of streams lies in their ability to reflect the condition of an entire watershed. Healthy trout are the product of good land and water management. When a stream dries up, we have all failed and we all lose.

Cecelia Huls was graduated from South Dakota State University, Brookings, in 1971 with a Bachelor of Science degree in science-writing journalism. She is editorial assistant of MONTANA OUTDOORS and joined the staff in February of this year.

*THE PEREGRINE FALCON (photo by Jay Sumner)*

A SOURCE OF E

# the endange

**by Eley Densen**

A great many people are talking about endangered species these days. But not everyone has the best interests of wildlife in mind and not everyone understands the issues.

Fake fur manufacturers try to sell the idea that all fur-bearing animals, even those produced by the thousands in captivity for their fur, are endangered. Some magazine writers and television producers either don't consult or disregard scientists when producing material on the plight of wildlife. Fund-raising and action campaigns design publicity releases that capitalize on emotional appeal and shock value instead of facts. And an advertising agency included non-endangered wildlife in a series of personalized checks labeled "endangered species" because the non-endangered species were easier to photograph. Conservation groups have published numerous, all-embracing lists of "endangered species" which bear little resemblance to reality.

The Department of the Interior doesn't have an official list of rare and endangered species, unless you want to call the table of contents of "The Red Book," a Bureau of Sport Fisheries and Wildlife publication, a list. A list of species threatened with extinction is periodically published in the Federal Register. It is actually two lists, one for species native to the U.S. and the other for foreign species.

The grizzly isn't on the Bureau's list of native endangered species although it was several years ago. The closely related Mexican grizzly made the list of endangered foreign species. And if a bill now being considered passes Congress, the government may be composing yet another list, "Species Likely to be Threatened with Extinction in the Foreseeable Future."

Most biologists who have studied grizzlies say it doesn't belong on the new list. However, Dr. John Craighead, well known for his work with grizzlies, dis-

WILDERMENT

*THE BLACK-FOOTED FERRET (BSFW photo by Luther Goldman)*

# red species

agrees. Early in 1972 he wrote the Montana Fish and Game Commission that he considered "the grizzly an endangered species within the contiguous 48 states." Dr. Craighead did not explain why he felt the grizzly was threatened except to say that "the best estimates place the number of animals below one thousand . . ." In 1941 the estimate was 1,100 bears.

Professionals don't say it is always detrimental to hunt endangered species. The effect depends on the reason for the species' scarcity. If the threat comes from habitat destruction, hunting has little effect. It removes animals that would lose homes or food supplies and probably die anyway.

Some species are classed as endangered although no immediate threat exists. The species is so classed when the available habitat is small and could be easily eliminated by a natural disaster. If more young are produced than are needed to sustain the population (as is usually the case), surplus animals could be taken for museum or zoo specimens, transplanted or hunted without harming the species. By bringing the population slightly below the carrying capacity of its habitat, more food is available for the remaining animals, the threat of disease is reduced and a healthier population may result. On the other hand, if a population is declining and is already below the carrying capacity of its habitat, additional losses may be detrimental.

In 1966 Congress directed the Department of the Interior to develop a list of native species of fish and wildlife threatened with extinction because of "threatened destruction, drastic modification or severe curtailment of habitat, or because of over-exploitation, disease or predation or because of other factors."

The 1966 Congressional directive didn't give the federal government authority to regulate the taking of endangered fish and wildlife species except on lands within the National Wild-

life Refuge and Park system. Nevertheless, the U.S. Forest Service did use its authority as a landowner to end wolf hunting in Minnesota's Superior National Forest after the Fish and Wildlife Service was forced to ransom a research animal wearing a collar and radio that was captured by a trapper.

The Interior Department interpreted the 1966 mandate to mean preserving species or subspecies *in the wild* when the total range, or a large portion of it, was within the United States. Therefore, the U.S. list of native endangered species includes some which are not actually in danger of extinction over their entire range and several which are, or could be, raised easily in captivity. As an example, the eastern timber wolf is surviving well in Canada but only one per cent of its former range remains within this country. The Interior list is based on scientific data provided by individual scientists, conservation organizations and public agencies.

**Is the grizzly rare? Endangered? Or neither?**

The public can offer suggestions but few individuals outside the scientific community have made studies or have reviewed all the data needed to make informed judgments about the status of wildlife populations. Suggestions based on newspaper clippings are valueless. Some petitions and letter-writing campaigns have been mounted by special interest groups in an effort to place certain species on the domestic and foreign lists. But no one seriously concerned about the welfare of wildlife really wants management decisions to be based on popular vote and emotion instead of facts. A dozen petitions don't carry the weight of a single letter from a scientist who has studied the species.

Many species suggested as possible candidates for the first list were virtually unknown. They might have already been extinct or were nocturnal or simply difficult to observe, causing scanty reports in scientific literature. Animals common outside the United States but whose range bordered this country were also suggested for the first lists.

Today the lists are much more complete and scientific data is more sophisticated. Changes in the lists frequently reflect increased knowledge rather than changes in the status of wildlife. Newer lists are not comparable from year to year, do not include extinct species and are currently based on the highest taxonomic classification possible. This means several endangered subspecies may be included under the listing of the full species or the genus name in the case of foreign species. (For these reasons, the number of endangered species on the lists should not be used as indicators of environmental quality.)

If three subspecies of a particular animal are known and only two are in trouble, the list will show the names of the two endangered subspecies. If the remaining subspecies becomes endangered, the next list will include only the name of the full species rather than the names of all three subspecies. A few birds believed to be extinct have been rediscovered and added to the list, making it longer. The list gets shorter when species become extinct.

Listing subspecies focuses attention on one distinct, endangered population and separates it from other subspecies that may be in good condition. But subspecies confuse people not familiar with biological distinctions. The endangered Key deer from the Florida Keys is the smallest whitetail and quite different in behavior and ecological requirements from the whitetail of the Florida mainland or Montana. And the remnant population of Montana's westslope cutthroat trout differs greatly from its eastern cousin. Still, to most people a wolf is a wolf whether it comes from Minnesota or Alaska, even though the subspecies are different.

**The whooping crane (about 60 birds) appears to be winning, but the brown pelican (several thousand birds) has only a remote chance for survival.**

Many people also couple the words rare and endangered. Most believe any species that is rare must also be endangered, and any species that is endangered is also rare. Nothing could be further from the truth. Some endangered species are still abundant and widespread. It does not mean extinction is imminent or certain. At the turn of the century many biologists would have said extinction was a certainty for bison and many other big game species. An expedition to collect specimens for

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the American Museum of Natural History in 1887 failed to locate wild bison. A book dealing with endangered species issued joinly by the National Park Service and the Fish and Wildlife Service in 1942 described 24 species as being on the verge of extinction. One is probably extinct today, 12 others are not currently threatened and only 11 remain on the endangered list.

The Devil's Hole pupfish of Nevada has been very rare since the last glaciation. This small fish is better adapted to life in hotter and more alkaline water than any other species. Because of its restricted habitat, the pupfish might be described as especially vulnerable to extinction but was under no immediate threat until the late 1960's. It might have persisted in safety for thousands of years if a farming corporation hadn't sunk irrigation wells near springs where the species thrived.

The listings could use refinement and more accurate descriptions. The populations of some species labeled endangered, like the peregrine falcon, are faced with an active threat and are declining rapidly. The populations of others are relatively stable.

And other species are few in number but neither rare nor endangered. California has less than 500 tule elk but their habitat is secure. They are protected and managed by the state and the herds are separated enough so that disease or natural disaster cannot strike the whole population. Even though only 500 remain, the tule elk is not faced with extinction.

The opposite is also true. Brown pelicans are not yet rare because the adults are long-lived. However, the pelicans have been unable to reproduce successfully on the West Coast. This species is surely doomed although its present population is large. Alligators and sperm whales probably number at least one-half million but are other examples of large populations in precarious positions. They have been classed as endangered because the inroads of poaching and past whaling history indicate a population collapse is probable. (Federal officials indicted a Georgia dealer in April 1972 for exporting 130,000 alligator hides poached in southern states.)

Congress recognizes these difficulties and the public's demand for federal protection for endangered species. It is considering a bill that would direct the Secretary of the Interior to prepare a list of species "likely to become threatened with extinction in the foreseeable future" and would make it a federal offense to kill species on the endangered or threatened lists. Several species on the present endangered list would probably be placed in the new category, and many species now classed as rare would be reclassified as threatened. The Secretary could permit the taking of endangered or threatened species if they were being managed by the states under federally established regulations.

**Anti-hunting interests sometimes push for a larger endangered species list to further their cause.**

Both state and federal officials are now considering the possible ramifications of the proposed legislation. Some fear anti-hunting interests would actively campaign, using emotional scare stories, for additional inclusions to the new list. It is possible a species that needs hunting pressure to control its numbers would be placed on the list.

And state officials fear a possible infringement upon the established right of states to manage resident wildlife.

Several Montana species are candidates for the proposed list. The black-footed ferret and the peregrine falcon are presently classified as endangered. The Montana grayling, westslope cutthroat trout and prairie falcon are described as either rare or endangered in the present edition of "The Red Book" although they have no legal designation. Montana species in the "status undetermined" category —northern swift fox, marten, fisher, lynx, wolverine, red-bellied red-shouldered hawk, ferruginous hawk, osprey, pigeon hawk, northern long-billed curlew and western burrowing owl —are all on the "undetermined" list and could be moved to the new list if the law passes.

Some flexibility in administering present laws is needed, but additional federal protection won't help many species. The birds are already covered by federal law. Threatened fish populations are rarely endangered because a few are caught by man. Their biggest threat comes from habitat losses and competition with other species. With the exception of wolves in the lower 48 states, most species presently listed as endangered are legally protected as much as is possible, necessary or enforceable. The recent eagle slaughter in Wyoming demonstrated that complete protection is almost impossible to enforce, especially against vandalism and malicious killing.

No law can insure the survival of a species if local people wish to rid themselves of it. This is a fact of life which people inexperienced in wildlife preservation often ignore.

And it would be tragic if the "threatened" list so confused the public and was so misrepresented by special interest groups that it failed to give the support sorely needed by endangered wildlife.

# Governor Proclaims Hunting & Fishing Day

HELENA—To dramatize the prominent role sportsmen have played in conservation, Governor Forrest H. Anderson has proclaimed Sept. 23, 1972 as the first "Hunting and Fishing Day."

President Nixon, Congress and more than a dozen states have already honored this day, now known as "National Hunting and Fishing Day." It will be celebrated annually on the fourth Saturday of September.

Hunters and anglers were more or less responsible for the conservation movement started 50 years ago and have been strong supporters ever since. Many of the nation's most famous conservationists, such as Aldo Leopold, John James Audubon and Teddy Roosevelt, were sportsmen.

Today, sportsmen financially float the nation's conservation effort. They fund state conservation agencies (including the Montana Fish and Game Department) with their license fees and with the excise taxes they voluntarily pay on their equipment. In fact, sportsmen supported legislation to impose special taxes on themselves and generally approve most license fee hikes.

This department and almost all (only one exception) its activities are financed with sportsmen's dollars. The only exception being a general fund appropriation for maintenance of land-based parks. This is the only use of Montana tax dollars by this agency.

Sportsmen's dollars go for better landowner/recreationist relations, conservation education, fish stocking programs, land acquisition, hunter safety, habitat improvement, research, environmental protection and many other fish and wildlife programs.

Not only do sportsmen support conservation, they battle environmental ills with their spare time and non-apathetic attitudes. Most are active members of at least one major conservation organization like the National Wildlife Federation, Ducks Unlimited, the Wildlife Management Institute, the Sport Fisheries Institute or the National Rifle Association. The members of these groups invariably frequent the front lines of environmental battles.

Some critics contend hunters and fishermen are only interested in the fish and game they pursue. But in truth, sportsmen battle for the wise use of all natural resources . . . not just game and fish. Sportsmen care about the land of which wildlife is a product, just as wheat or copper is.

For example, a game range purchased by this department or a marsh acquired by Duck Unlimited gives life to thousands of species—not just game and fish. In short, what is habitat for deer, ducks or cutthroat trout is also habitat for cottontails, songbirds, frogs and shore birds.

That same range or marsh might provide scenic camping spots, lakes for boating, streams for gold panning or mountains for climbing. So, in essence, most outdoor recreationists — bird watchers, boaters, picnickers, campers, sightseers, shutterbugs — benefit from the efforts of hunters and fishermen.

In a time of more and more posted land, public recreation areas (fishing access sites, parks, refuges and game

*Director Don Brown (left) stands by while Governor Anderson (right) signs his official proclamation honoring the sportsman. (photo by Bobby Gruel)*

ranges) are priceless. These areas, many of which are acquired by sportsmen, are all open to the general public.

This department totally agrees with the Governor's statement, "Hunters and fishermen were among the first Americans to realize the critical need to protect our environment." And we offer these suggestions for any private individual or club that wishes to celebrate National Hunting and Fishing Day.

We recommend:

. . . that outdoor clubs hold an open house and invite speakers to talk on conservation, wildlife management and environmental protection and have demonstrations on outdoor lore, hunter safety and good landowner/sportsmen relationships.

. . . that teachers at every level in the school system make special notice of this day in their classroom, being sure to emphasize the role of the sportsmen in conservation.

. . . that merchants hold special sales on September 23, noting the contributions of hunters and anglers.

. . . that all facets of the news media pay proper tribute to the first "National Hunting and Fishing Day."

. . . that interested persons ask local public officials to also honor the day.

. . . that every sportsman and sportswoman be personally conscious of the day and do every "little thing" they can to better its chances of widespread acceptance.

To further highlight the first Hunting and Fishing Day, the Montana Fish and Game Commission will present an award to the one Montana landowner who has done the most to promote better landowner/recreationist relations.

Not only the Fish and Game Department, but all public (federal, state and local) agencies will gladly aid any group planning special festivities on the first "National Hunting and Fishing Day."

## — PROCLAMATION —

**WHEREAS, Hunting and fishing have been an important part of life in Montana before and after the passing of the frontier; and**

**WHEREAS, Hunters and fishermen were among the original conservationists and the first Americans to realize the critical need to protect our environment, particularly wildlife habitat; and**

**WHEREAS, Hunters and fishermen have a strong and lasting appreciation for those things—natural and wild—that make Montana special; and**

**WHEREAS, The hunters and fishermen of this state are deserving of public recognition for their contributions to conservation and the protection of the environment of Montana.**

**NOW, THEREFORE, I, FORREST H. ANDERSON, Governor of the State of Montana, do hereby proclaim Saturday, September 23, 1972, as HUNTING AND FISHING DAY and I ask all Montanans to make every effort to protect the forests and fields and waters to assure the continued existence of our wildlife.**

# "I will fight no more forever"

—Chief Joseph

## A LESSON TO BE LEARNED FROM THE FLIGHT OF THE NEZ PERCE

by Norman Guyaz

*A black and white representation of an original color oil painting by J. K. Ralston, now proudly owned by Dale C. Hawkins of Billings.*

In the foothills just north of the remote Bear Paw mountains in north central Montana is a monument to a pathetic struggle between the red man and the white man. At this site, Chief Joseph's Battleground of the Bear's Paw, the remnants of the Nez Perce tribe were finally halted in their 1,700-mile flight from Idaho. The battle lasted five cold and dreary days in the autumn of 1877 and symbolized the final demise of Indian resistance in America and the subjugation of a once proud and free people.

From the time white man set foot on this continent, he had Indian problems. The Indian's concept of land holding was particularly difficult. The Indian viewed the land as everyone's to use, with no ownership. The white man brought with him from Europe the concept of private land, ownership and trespass restrictions. Many decades passed and the Indian's domain shrank, aided by the white man's deceptive tool, the treaty.

In the 19th century, the era of the "Manifest Destiny" (a doctrine that stated the U.S. had the right and was obligated to expand to the limits of the North American continent), the white man's progress was staggering. The surge of settlement into vast, "empty" areas of the U.S. caught many Indian tribes in the vortex of the frontier movement and the Indians either cooperated, resisted and were defeated or fled.

In the mid-1800's, white miners and cattle ranchers encroached on more and more sacred Nez Perce land in west central Idaho and northeast Oregon. The Treaty of 1863 was signed by nearly half the tribe and greatly reduced Indian holdings, but was soon disregarded by the white man anyway.

Minor conflicts broke out with nontreaty Nez Perce warriors, and white outlaws among the gold seekers unleashed murderous orgies against many of the nontreaty bands. A chronic Indian problem developed and early in January, 1876 a U.S. Indian Commission recommended all the remaining nontreaty Nez Perce Indians be resettled on the Lapwai Reservation in Idaho. The suggested move would have further reduced Nez Perce land and freedom. And, in addition, the military was to occupy the contested Wallawa area to prevent trouble between the whites and

## THE SURRENDER OF THE NEZ PERCE 40 MILES FROM THE FREEDOM OF CANADA AT CHIEF JOSEPH'S BATTLEGROUND OF THE BEAR'S PAW, NOW A STATE MONUMENT

nontreaty Indians. If the Nez Perce did not settle peaceably in a limited time, the tribe would be moved by force onto the reservation.

Most of the friendly, peace-loving Nez Perce reconciled themselves to the reservation life and began to move hopelessly but peacefully in May of 1877. They were given one month to make the move. The task of moving so much in so little time increased tension in the tribe. Under the strain, a few desperate Nez Perce warriors

## fight no more continued

sought vengeance on some white settlers. Believing all would be blamed for the bloodshed, many of the nontreaty Indians joined the violent malcontents. Chief Joseph, who had been absent during this period, also joined the nontreaty Indians who assembled at White Bird Creek in Idaho.

After the last series of raids, white communities became overly concerned and the U.S. military was called in. General Howard sent two companies of troops to White Bird Creek and was severely defeated on June 17, 1877. To avoid further battles, the nontreaty Nez Perce decided to flee, expecting at first to find safety with the Crow in Montana. The plan was later changed to flight into Canada. Thus began the courageous epic of the Nez Perce.

They traveled over rugged, nearly impassable terrain, through barren and desolate land. Nez Perce warriors successfully engaged or evaded 10 separate U.S. commands during this section of the flight and still kept the women, children, aged and horses safe and moving.

Finally, in the Bear Paw Mountains only 40 miles from Canada, Col. Nelson A. Miles and his command surprised the tribe, engaged them in battle and fought to a standstill.

On Sept. 24, 1877, Chief Looking Glass had taken over military leadership of the fleeing Nez Perce from Chief Lean Elk. Looking Glass favored a slower pace, became over-confident and relaxed his vigil, only to be overtaken by Miles.

MONTANA HISTORICAL SOCIETY PHOTO

**CHIEF JOSEPH**

On the morning of September 30th, Miles' troops charged the Indian encampment at Snake Creek. The charges were unsuccessful because of Nez Perce sharpshooters, so the military drew back and set up a siege on the camp. The Indian horse herd was captured and the tribe was trapped. Miles called for reinforcements even though he knew the tribe was defeated.

The tribe lost chiefs Lean Elk, Pile of Clouds, Toohoolhoolzote and Looking Glass during the siege and leadership fell to chiefs Joseph and White Bird. Chief Joseph's role had been, from the beginning, that of warrior and guardian of the tribe, responsible for protection of the non-fighting members.

White Bird strongly opposed surrender and subsequently escaped into Canada, leaving Joseph to speak for the women, children and aged. He surrendered to Miles on Oct. 5, 1877 and is reported to have said:

> "Tell General Howard I know his heart. What he told me before I have in my heart. I am tired of fighting. Our chiefs are killed. Looking Glass is dead. The old men are all killed. It is the young men who say yes or no. He who led the young men is dead. It is cold and we have no blankets. The little children are freezing to death. My people, some of them have run away to the hills and have no blankets, no food; no one knows where they are, perhaps freezing to death. I want time to look for my children and see how many of them I can find. Maybe I shall find them among the dead. Hear me, my chiefs, I am tired; my heart is sick and sad. From where the sun now stands, I will fight no more forever."

Thus ended the Nez Perce campaign.

The tribe's 2,500-mile exile journey to Indian Territory in Kansas, the gradual demise of the tribe and their struggle to return to their homeland are other stories. But Chief Joseph and his band remains as an example and inspiration to those who seek equality among men and will serve as a reminder of the problems and tragedy inherent in the struggles of a minority people.

**CHIEF JOSEPH'S BATTLEGROUND OF THE BEAR'S PAW**
**location and notes**

Chief Joseph's Battleground of the Bear's Paw is located 16 miles south of Chinook, off U.S. Highway 2 in north central Montana. The site is listed on the National Register of Historic Places.

The battleground became a state monument in 1959 when the Fish and Game Commission acquired the major portion of the area. An additional portion was added as a gift in 1968.

A long-time resident in Blaine County, C.R. Noyes, took a special interest in the battlefield. He surveyed the area and put markers at significant sites. Present development includes interior roads, parking areas, interpretive signs and markers and a trail system.

Norm Guyaz holds a Bachelor of Science degree and a Masters degree from the University of Maine, Orono. He is a Recreation Planner for the department's Recreation and Parks Division. The 33-year-old Connecticut native has also done cartographic editing for The National Survey and has taught science in Farmington, Maine.

# The Other Half

. . . A Woman's Look at Conservation by Cecelia Huls

### Up With Trash

Some five years ago, resort town Virginia Beach, Virginia, decided it had nowhere to go with its garbage but up.

That, in essence, was the beginning of Mount Trashmore. The heap grew at a rate of 1,000 tons a day, 85 per cent garbage and trash and 15 per cent dirt. By now it's some 72 feet high, 800 feet long, 100 feet wide and the pride of the community.

The town folk plan a recreational site on its slopes, complete with a 10,000-seat amphitheater, picnic tables and soapbox derbies.

The project, partially funded by the federal government, is a novel approach to sanitary landfill. Usually, garbage is buried, but in Virginia Beach the water table is too close to the earth's surface for this method to work.

City officials note that Mount Trashmore cost $700,000 over five years, cheaper than incinerating garbage. And tests at the site show no ground pollution, no rats, no flies and no odor.

A novel approach to our "rising" solid waste problem.

### Poison Delicious?

Food poisoning symptoms don't necessarily alter the taste and appearance of food, says the National Safety Council. Contrary to folklore, molds are harmless, although ugly and unpalatable. Meat that smells bad is decaying, but putrefaction doesn't cause food poisoning the council said.

Regardless of the appearance and odor of food, if you have doubts about its safety, throw it away without tasting. The financial loss is minute compared to doctor bills and suffering as a result of food poisoning.

### "Two Hundred Trees"

This is the bicentennial era and the National Society, Children of the American Revolution has chosen a long-range conservation project to commemorate the nation's 200th anniversary.

"Two Hundred Trees" will last until the society's annual convention in 1976. The 822 local chapters will have each planted at least 200 trees, one for each year of independence.

Why plant trees? Just one acre of trees can produce enough oxygen for 18 people to breathe for one year. In addition, trees absorb carbon dioxide emitted by cars and factories and filter dust, ashes, pollen and other particles from the air.

### Back to Soap

USDA scientists proposed (at a recent meeting of the American Oil Chemists' Society) the use of soap formulations that will wash as efficiently in hard water as phosphate detergents. If widely adopted, this could significantly reduce water pollution.

Soap's effectiveness in hard water is made possible by the addition of a nonphosphate builder and one of several fat-based compounds that act as lime-soap dispersing agents. The scientists reported their soap formulations with the lime-soap dispersing agent and builder were as effective in tests as modern household detergents.

### Zero Population Growth?

A Census Bureau survey shows American wives expect smaller families today than just five years ago. Sixty-four per cent of the women in the 18-24 age bracket said they expect no more than two children. Forty-four per cent gave that response in 1967. Wives in the 18-39 age bracket said they expected no more than an average 2.8 children, down from 3.1 in the earlier survey. A family average of 2.1 children will achieve a stable population, or zero growth.

### It's Enough to Make You Sick!

The nation's total annual solid waste accumulation is enough to cover three-fourths of Yellowstone National Park with a layer one foot thick.

### Music Soothes the Savage Insect

A new electronic device has been developed that may make Off, 6-12 and other similar insect repellents obsolete. The latest development is called the Skeeter Skat Electronic Mosquito Repeller and is carried or attached to the user's outer clothing. It has an effective range of three to eight feet.

The device makes use of audio frequency sound waves to repell the biting female mosquito.

### Conservation Isn't Their Bag

Housewives Involved in Pollution Solutions (HIPS) recently conducted a study of the MacDonald's hamburger people. It seems they have used three billion kilowatt hours and 890 square miles of forest just to make the paper cups, bags, wrappers, napkins, etc., necessary for eight billion burgers.

# THE CATCHALL

notes and comment
by Bill Schneider

## gun control flares up

Along with the sad and senseless shooting of presidential candidate George Wallace comes the re-kindling of the gun control issue. Already, dozens of bills haunt congressional halls. Some would repeal the Gun Control Act of 1968, and others would strengthen it.

In view of this, and painfully avoiding comment, I present these facts to keep in mind when you follow what will surely be another nation-wide debate between the anti-gun clique, headed by a few prominent senators and part of urban America, and the pro-gun lobby backed by at least 40 million gun owners.

. . . Since 1968, 45 state legislatures have passed legislation relaxing the long arms provisions of the 1968 Gun Control Act at the state level. Or, in essence, 90 per cent of state legislatures agreed that the federal act was too strict in this respect.

. . . A Harris Survey in 1971 showed only 66 per cent favoring registration and then only for handguns. However, back in 1968, a similar Harris study showed 81 per cent favored registering all guns.

. . . In Washington, D.C., about 47 per cent of the guns are registered in spite of the registration proviso in the 1968 Act. In Detroit about 17 per cent and in New York about 47 per cent. So registration doesn't work (or isn't enforced) in many places and especially in larger cities.

. . . A Philadelphia Inquirer poll revealed 83.5 per cent were opposed to more gun controls.

. . . Less than one-half of Congress voted "yes" in the final voting on the present gun control act. Of the 535 senators and representatives, only 230 voted for the act. The remaining 305 either voted "no" or didn't vote.

. . . Regardless of what some columnists contend, people, not guns, kill other people. Not one single firearm can aim itself at a selected victim or accurately squeeze its own trigger.

. . . The right to bear arms is constitutionally guaranteed, as is the right to free speech, press and a trial.

. . . The federal law has a gigantic loophole in that it allows the importation of "parts" of cheap handguns for assembly in the U.S. The law was originally designed to ban these cheapies . . . also known as "Saturday Night Specials."

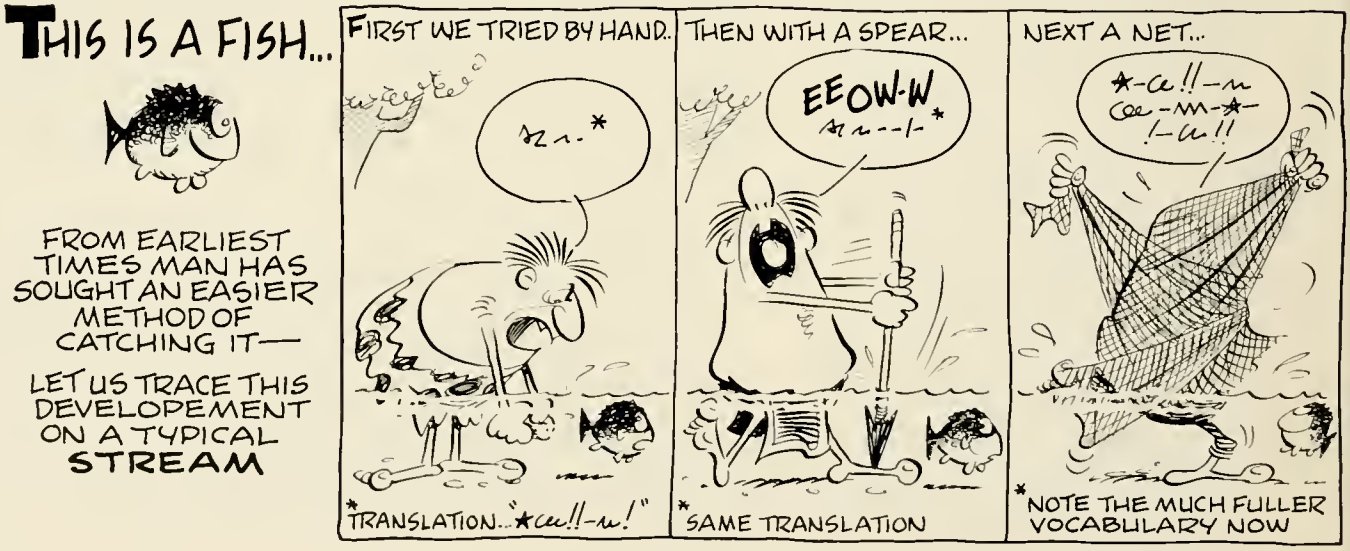
. . . Montana Congressman Rep. Dick Shoup conducted a survey among his cohorts which showed sentiment ran 100-to-1 in favor of repealing the current federal law.

. . . In a recent survey of 40,000 readers, LIFE magazine found the public clearly doesn't want confiscation and is in favor of tightening up on criminals rather than firearms.

### burner gets burned

Judge James D. Ferda, Great Falls, has fined a Black Eagle man $1,000 for an open burning violation. James Bogard Williams, 56, received the maximum penalty for this unlawful act.

Never before has a Montana


THIS IS A FISH...
FROM EARLIEST TIMES MAN HAS SOUGHT AN EASIER METHOD OF CATCHING IT—
LET US TRACE THIS DEVELOPEMENT ON A TYPICAL STREAM
FIRST WE TRIED BY HAND.
*TRANSLATION..."★ee!!-w!"
THEN WITH A SPEAR...
EEOW-W
*SAME TRANSLATION
NEXT A NET...
*NOTE THE MUCH FULLER VOCABULARY NOW

court inflicted such a severe penalty for such a violation although similar, but less severe, fines have been ordered in Helena.

Perhaps such court actions are needed in conjunction with our various laws and regulations to abate open burning air pollution.

## WASHINGTON WATCH

by Louis S. Clapper
Conservation Director
National Wildlife Federation

**strip-mining proposals moving:**

Proposals for the control of strip-mining are moving along well in both the Senate and House and veteran Capitol Hill observers anticipate that new, tough legislation likely will be enacted this year, probably before the political conventions. One primary question which must be answered before legislation reaches either floor is whether the new controls will apply to all surface mining or just coal. Another relates to the extent and degree of reclamation which will be required. It now is viewed as likely that the federal government will play a strong role in determining strip-mining regulations and there is a good possibility that a reclamation fund will be established to make a national effort on rehabilitating so-called "orphan lands" which have been strip-mined and abandoned. If this program is approved, the reclamation efforts could have a material benefit through the establishment of areas for fish and wildlife and recreation in many parts of the country. Even though some conservationists would hope for total prohibition of strip-mining, most observers believe the nation's energy needs are so great as to make this approach unrealistic until alternate types of power are fully developed.

**no clean water bill:**

Many observers on Capitol Hill seriously question whether or not a clean water bill will be enacted by the Congress this year.

The version recently passed by the House differs so drastically from that approved by the Senate last year without a dissenting vote that a compromise may be out of the realm of possibility, particularly in an election year when the session may be of short duration. If this occurs, the federal program of making grants to cities for the construction of waste treatment plants will be underfunded or wiped out.

Conservationists and environmentalists took a shellacking as they tried to improve the water pollution bill reported to the House by its Committee

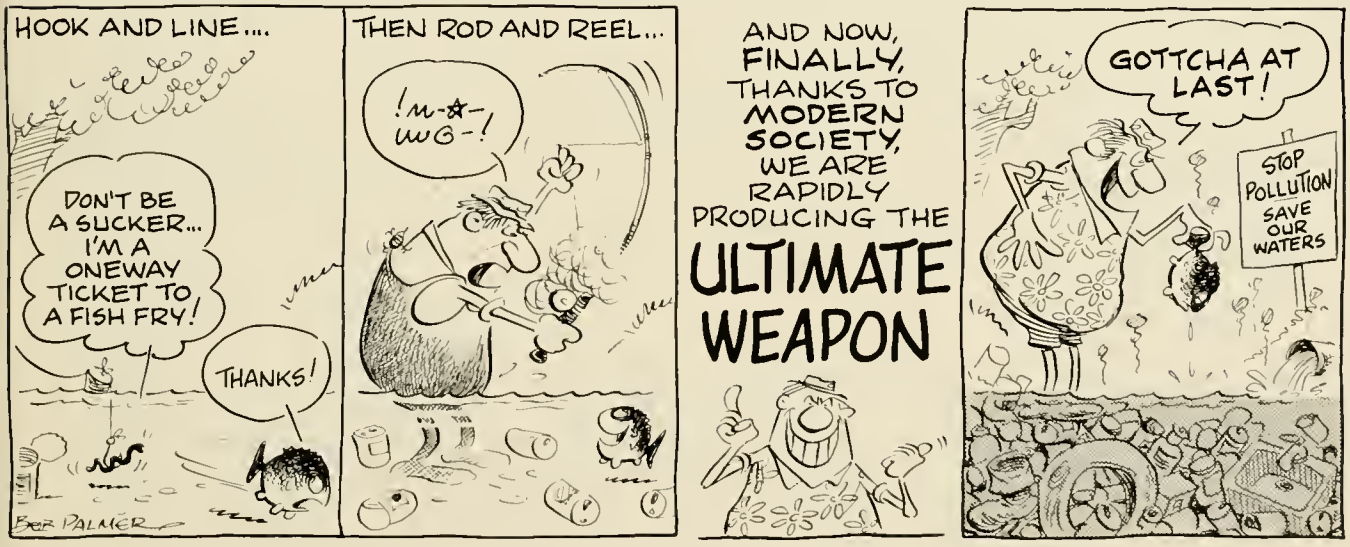
## Alice in Disneyland

**"Alice in Disneyland," a feature article by Margaret Nichols in the May issue of FIELD & STREAM, provides a total expose of Alice Herrington's Friends of Animals group and the similar anti-hunting group known as Fund for Animals headed by Cleveland Amory, TV critic.**

**These anti-hunting outfits have succeeded in making noises out of all proportion to their size. Also, they're listened to in Washington circles with a credibility unjustified by their biological backgrounds, which according to the article are nil.**

**In her fact-filled story, Miss Nichols takes Miss Herrington's Friends of Animals and lays it bare financially. For example, this anti-hunting group collected $468,166.00 in 1971 from contributions and other income, of which $333,604.00 went for "charitable purposes"; $97,315.00 for public information and $101,022.00 for administrative costs, including Miss Herrington's $19,267.00 salary. No contributions, it seems, went for conservation or wildlife management. In fact, their $333,604.00 allotment for "charitable purposes" is less than one per cent of what hunters make available for conservation each year through their license fees and taxes on their sporting equipment.**

**While the hunter-contributed funds go promptly to the states for conservation, the Herrington outlay, on the other hand, went to veterinarians to redeem spaying certificates. The prime purpose of Friends of Animals, it seems, is spaying cats.**


HOOK AND LINE....
DON'T BE A SUCKER... I'M A ONEWAY TICKET TO A FISH FRY!
THANKS!
BOB PALMER
THEN ROD AND REEL...
!M-★-WG-!
AND NOW, FINALLY, THANKS TO MODERN SOCIETY, WE ARE RAPIDLY PRODUCING THE ULTIMATE WEAPON
GOTTCHA AT LAST!
STOP POLLUTION SAVE OUR WATERS

*(courtesy of Bob Palmer and the Springfield (Mo.) News & Leader)*

# THE CATCHALL

on Public Works through a series of amendments. Congressman John D. Dingell (Mich.), one of the sponsors of the "Clean Water Package" which failed, attributed the defeat to "intense pressure put on members of the Congress, under the direction of the White House, by the big industrial polluters of the nation." He inserted a copy of a letter distributed by the National Association of Manufacturers, asking for support of the weak House bill.

**lead shot:**

The National Wildlife Federation has directed a petition to the Secretary of the Interior to ask for the adoption of regulations requiring the use of soft iron shot, rather than lead shot, in hunting migratory waterfowl.

The Federation is asking that the use of lead shot be phased out for waterfowl hunting for the 1973 waterfowl hunting season and on public lands under the administration of the Interior Department. This position is based upon documented, widespread losses of waterfowl from lead poisoning which results from the birds ingesting spent lead pellets.

The National Wildlife Federation presented information that soft iron shot can be made available by ammunition manufacturers by the beginning of the 1973 waterfowl hunting season. Further, this information shows that soft iron shot will be at least as effective as lead shot and can be used in existing firearms without serious damage.

**wolf parkas:**

After the National Wildlife Federation lodged protests, the United States Department of Defense (DOD) suspended an order for the procurement of 277,502 parka hoods with wolf fur ruffs. The Federation protest came when the Department of Defense invited bids on the parkas specifying parka hood ruffs. The National Wildlife Federation estimated that the hides of approximately 25,000 wolves would be necessary to fulfill the contract.

Executive Vice President Thomas L. Kimball estimated that this number is about one-half of the total North American wolf population, a species already extinct in most of the contiguous 48 states. The Federation recommended that the procurement order be reduced in number or the schedule for delivery of wolf-trimmed parka hoods be phased over a period of several years if synthetic fur is not suitable. DOD is suspending the order until the ecological impact of it can be studied.

**public land:**

Interior and Insular Affairs Committees in both the Senate and the House have been giving active consideration to bills which would establish a national land use policy, in essence authorizing a federal-state program to develop information on the the best uses of lands, including rural areas, and the best way to zone them for those purposes.

**marine mammals:**

The Senate Committee on Commerce is considering legislation to protect marine mammals, and a newspaper advertising campaign mounted by Friends of Animals is resulting in many letters urging complete protection rather than scientific management by trained professionals. The Senate Committee is considering a 15-year moratorium on the taking of all ocean animals. The House already has passed a bill with a five-year moratorium.

## I & E Becomes E & I

As part of the Executive Reorganization Act passed by the last legislature, the Information and Education Division (I & E) was combined with the Environmental Resources Division. The new division, Environment and Information (E & I), will, in general, continue the activities of both former divisions.

James A. Posewitz, former chief of Environmental Resources, was named administrator of the new division.

## definitely the "quote of the year"

"Brazil can become the importer of pollution," said Planning Minister Joao Paulo Velloso, after endorsing a huge woodpulp project for Japanese paper producers. "Why not? We have a lot left to pollute. They don't."

## individual copies

Individual copies of MONTANA OUTDOORS are available on Montana newsstands, at the department headquarters in Helena or at the department's seven district offices in Kalispell, Missoula, Bozeman, Great Falls, Billings, Glasgow and Miles City. Fish and Game offices also have some back issues for sale. Individual copy price—50¢.

## wildlife shorts

The lint from the "lint trap" in electric dryers makes excellent lining for birds' nests. Just hang pieces of the lint outdoors and the birds will do the rest.

The culachon, a fish native to the North Pacific, contains so much fat and oil that it can be used for a candle when dried.

* * *

The male ostrich has several wives, all of which lay their eggs in the same nest. After the eggs are laid, the male assumes incubation duties.

The Pronghorn antelope is the swiftest of all North American mammals.

* * *

The short-tailed shrew has enough poison in its salivary glands to kill 200 mice.

* * *

The atlas moth (not found in Montana) has a wingspan of 10 inches or more.

# book reviews

**SLAUGHTER THE ANIMALS, POISON THE EARTH** by Jack Olsen, Simon and Schuster, Inc., New York, 1971, 287 pages, $6.95.

You need a strong stomach and well-controlled temper to read Jack Olsen's *Slaughter the Animals, Poison the Earth*. Olsen is a well-known writer, having been Midwest Chief for TIME magazine and a senior editor of SPORTS ILLUSTRATED. He also authored *Bridge at Chappaquiddick* and *Silence on Monte Sole*.

*Slaughter the Animals, Poison the Earth* concerns itself with the war being waged by sheepmen on coyotes. According to Olsen, it is a grim, persistent business with a considerable amount of lethal fallout killing innocent wildlife, domestic stock and, occasionally, people.

Olsen interviewed thousands of people in writing his book, liberally spiced with quotes to illustrate feelings on both sides of the "predator control" problem. Some quotes are so pungent one hopes the contenders never get their hands on nuclear weapons.

Work by federal "trappers" is characterized as an eternal aggravation of an insoluble problem, the work already done causing a mountain of work to do (with eager help from private individuals and industries), while in some states politicians and bureaucrats look the other way. On the other hand, those against poisoning the earth are characterized as little old ladies in tennis shoes, as kooks or worse.

It is apparent that like an unguided missile, an inscrutable permutation of Parkinson's Law has moved the whole controversy of predators far afield from a face-to-face coyote-sheep confrontation. It is now thoroughly enmeshed in bureaucracy, industry and emotion where facts are merely confusion factors. *Slaughter the Animals, Poison the Earth* is highly recommended whether you raise sheep or coyotes, unless you already have high blood pressure.—*Bob Carroll*

**STEWARDSHIP: MODERN METHODS OF LAND PRESERVATION USED BY "GOOD STEWARD" LANDOWNERS** by the Open Space Institute, New York, 1965, illustrated, paperback, no price listed.

This clear, concise and complete treatment of open-space preservation is aimed at the small number of private landowners who control large tracts of open land near urban areas. These people hold the key to one aspect of the appearance and livability of an area—open space.

The author tries to make these landowners aware of their ability, as a group, to preserve significant tracts of natural, undeveloped land. He promotes contact with nature to give meaning to life and has written the book to assist landowners and recreationists. He includes case studies of preservation precedents to illustrate methods of action and provides these people with a background for rational decisions.

Private landowners can fill a vital gap left by public agencies. The book discusses methods for donating, developing and living on open land. The role and rights of the owner, together with covenants, open-space easements, income tax deductions and cluster housing are explained as beneficial ways to retain natural areas in perpetuity.

Of course, the private landowner is advised to obtain legal advice because of the variations in local and state laws. But, this up-to-date book can lend valuable assistance to private landowners as well as planners, public officials and the general public. —*Norman Guyaz*

**THE WILDERNESS CABIN** by Calvin Rustrem, illus. by Les Kouba, Macmillan, 167 pages, $5.95.

Anyone even thinking about building a cabin, summer home or a year-around home will find *The Wilderness Cabin* invaluable. Probably the best advice in the book is, "If you want to build a cabin, do it."

My previous wood-butchering experience was limited to tacking a couple of apple boxes together to hold books and to refinishing a rifle stock. Then, *The Wilderness Cabin* cast its spell and my wife and I cast caution to the wind and built a cabin. With the occasional help of friends, it was liveable in six months and done in a year. Deer, elk, bear and moose are often in the yard, and with the duet of coyotes and wind in the trees, the thought of town life is appalling. *The Wilderness Cabin* is a great inertia overcomer and its construction detail advice is so sound even I could understand it.—*Bob Carroll*

**LIKE THIS MAGAZINE?**

Perhaps you would like to order MONTANA OUTDOORS for yourself or a friend. Just fill out this blank and return it with your remittance before Sept. 1, 1972. You won't miss a single issue.

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# dear F&G

## write congressmen

As one vitally interested in Montana and our great outdoors, I was aroused by editorials in the Nov/Dec 1971 and Jan/Feb 1972 issues of MONTANA OUTDOORS and by your article "The Hunter" in the latter issue.

There is no doubt the Friends of Animals movement is potentially inimical to both one's right to hunt and to the continued existence of many game species. One can only wonder where the Friends of Animals and the Committee for Humane Legislation were when the animals needed them years ago.

Now, hundreds of millions of sportsmen's dollars have been spent and politicians have been convinced of the need for animal habitats. The Friends of Animals may have some good ideas, but they don't have the right to deprive another group of the benefits of its labor or dollars.

My criticism of your editorial in the Nov/Dec issue centers on your suggestion that hunters write to the Friends of Animals and express their personal view on a complete ban on hunting. I would suggest they not waste their time on such action. If 100,000 hunters wrote to that group and only one wrote an illogical, nasty, intemperate letter, you can be sure that letter would be the one most often quoted by the Friends as representing the views and mentality of hunters.

I would suggest, instead, that all hunters read your article and editorials carefully and then buttress that information with as many facts, figures and opinions as they can and then spend time writing their congressmen and congressmen in other districts that might be interested in a reasonable, unemotional discourse on the positivism of hunting. Get together in groups and refine your arguments, hunters, and then compose your letters. A logical, well-reasoned letter will get more attention than a hasty, emotional, inaccurate discourse. But, unless enough reasonable letters are sent, the unreasonable may take the day by their numbers alone. So tarry not, hunters, and write your letters to the proper people, and don't waste time with your opponents. Any letter written to Friends of Animals is just one less influential letter to an elected official.

Carl D. Phillips
Seattle, WA

## article affected decision

Early in April of this year your department provided us with one hundred copies of MONTANA OUTDOORS, July/August 1971 issue, at your expense. An article within the publication, "A Bad Spring on a Big Creek," was read by many people throughout the Miller Creek Drainage Basin in southwest King County, Washington.

King County was to channelize Miller Creek as a method of flood control. I held off sending you a thank you letter for your valuable contribution until I knew what the final outcome was to be regarding Miller Creek. It appears that King County will not channelize Miller Creek. I believe your contribution was a significant factor in this decision.

Jim Thebaut
Seattle, WA

## armchair travelers

Our neighbor, whose niece lives in your state, gave us the first issues of MONTANA OUTDOORS and we enjoyed them so much. We are retired farmers who don't feel able to travel. We can get better acquainted with your state by reading your magazine than we probably would if we traveled there.

Being farmers, we have a great love of nature and all outdoors, especially mountains which we have never seen in person and the wildlife of that region.

Thank you for giving us the opportunity to travel in your state via MONTANA OUTDOORS.

Mrs. Faye E. Jensen
Logan, IA

## for controlled harvest

I wish to commend you for the fine magazine you publish.

I read with great enthusiasm the article entitled "The Hunter" by Bill Schneider. As a Montanan and a sportsman, I feel it is our duty to protect wildlife as well as harvest it. Controlled harvest gives us both these aspects. If people could see, as many of us have, game animals starving because of over-population and lack of grazing, they would probably change their viewpoint.

I only hope Montana can produce the informed sportsmen needed in this day and age. Your magazine accomplishes this task well, for both in- and out-of-state hunters.

Keep up the good work.

—Midshipman Richard K. Streib
U.S. Merchant Marine Academy
Kings Point, NY

**MOVING?**

If you're planning to move in the near future, please fill out this blank and send it to MONTANA OUTDOORS, Fish and Game Department, Helena, Montana 59601.

FORMER ADDRESS:
name
address
city state zip

NEW ADDRESS:
name
address
city state zip

## getting it off the chest

Enclosed is $2 for a subscription to MONTANA OUTDOORS starting with the Jan/Feb issue. You have a very fine magazine with well selected topics and excellent writing.

I am very concerned about the serious lack of treatment, by all outdoor publications, of a very important matter — the impact which the addle-headed restrictive gun laws have on the pre-teenager and teenager Henry Thoreau's as well as the outdoor scouting programs.

And why can't such people as Kramer be prosecuted up to the hilt for the grossest and most harmful kind of libel and a boycott started against Quaker Oats as well?

Why isn't there a concerted campaign to get more chapters of such outdoor organizations as the Izaak Walton League to fight these scurrilous and dishonest people who try to terrorize the public and pressure the weak politicians with their morbid, maudlin bigotry. And the fireside TV public who, as outdoor illiterates and loaded with neurotic, unbalanced emotionalism, are the main recipients of this maudlin conjecture and are out to show how the tail wags the dog.

Howard C. Snyder
Sandpoint, ID

• *Mr. Snyder refers to Stanley Kramer who produced "Say Goodbye," a controversial anti-hunting TV special aired by NBC in 1971. Quaker Oats sponsored the film, now being distributed to schools and similar groups under the name of "Environmental Education." To my knowledge, no legal action was taken against the network, producer or sponsor for contrived attempts to mislead the viewing public.*

## around the world

I would like to offer my sincere congratulations to you and your staff for the remarkable job you have done in making MONTANA OUTDOORS such an informative and beautifully illustrated publication.

My job as a TWA pilot has taken me away from Montana from time to time, but my heart and permanent residence remains in Big Sky Country.

I was brought up in the true Montana spirit by one of the Big Sky Country's most avid and successful sportsmen. I am very proud of my Fish and Game Department's high standard magazine. The May/June issue has already been around the world some three times, and I never pass up the opportunity to show it off.

The best to my fellow Montanans.

Larry C. Ashcraft
Incline Village, NV

## eagles have value

Once again the ignorant strike. I refer to the item "Deadeye" in the Catchall section of your May/June issue. "Deadeye" should know, as others do, that exhaustive searches of eagle's aeries have never revealed traces of lamb, even when those aeries were in close proximity to lambing pens.

Actually, our eagles are exceedingly valuable to ranchers, helping to control rodents and other pests. Unlike man, they do not kill merely to despoil.

I wish continued success to your excellent magazine that my family and I enjoy.

Walter J. Crawford, M.D.
Riverside, CA

## recycling isn't easy

I would like to call your attention to the fact that the recycling situation here in Montana is not as simple as you presented it in your Classroom Conservation section in the March/April 1972 issue.

Being a newcomer to the state and having read this section in your excellent magazine, I took all my items to be recycled to Billings not long ago. I had aluminum cans and steel cans, washed and flattened with labels removed. I went to the Fred Briggs Distributing Company and was told, not too politely, that all they would accept were the aluminum cans and these only on Wednesday afternoons from 1 to 4. This was a Saturday morning, the only time I can conveniently get to town.

The other two "recycling centers" listed in your article were contacted by phone and the following was determined: Intermountain Beer Distributing Company will accept aluminum cans and Rainier bottles only, on Saturday from 9 a.m. to 12 noon. Mustang Beverage Company will accept Lucky cans or bottles only, Monday, Wednesday and Friday from 2 to 5. That is it. Nobody would take steel cans, nobody would take washed bottles and nobody would take newspapers.

This is better than nothing, I suppose, but it's a far cry from the interest and cooperation we were accustomed to in San Francisco and Phoenix. Perhaps there is still enough open space in Montana that recycling doesn't seem important to her people yet. But the time will come when it will, you may be sure.

Mollie O'Kane
Hardin, MT

## replant for wildlife

Your worthy feature on "Montana Flora And What It Means to Wildlife" is very informative. If wildlife needs this browse and cover, and they surely do in this over-grazed section of the state, it makes sense to plant desireable species. Many landowners will be willing or anxious to do this.

But where do we find seedling stock? Transplanting some varieties is difficult. The State Forestry Nursery doesn't handle the most desireable species—mahogany, buckbrush, bitterbrush, etc. Why not? Nor do private nurseries, we have asked. Just asking them produces that "Are you serious?" look on their faces.

Any suggestions?

Gordon Beebe
Stevensville, MT

• *Is your area part of a rest rotation system and have you ever heard of or considered such a plan? If not, contact the Fish and Game Department in your district. They will come out to your area and suggest ways to increase the carrying capacity of your land for both domestic and wild stock.*

*But it is difficult to correct the symptoms without treating the problem. As you said in your letter, the land is over-grazed. No replanting will solve this problem; the livestock must be thinned. If you do want to replant, fence a one-acre area from livestock and dedicate the land to wildlife for one year. After that time, the land will have naturally regenerated and the area can be used for seed stock.*

## breaks are home

A friend of mine sent me a copy of MONTANA OUTDOORS and I found it so interesting, I would like to subscribe to it.

The article on the Missouri Breaks by Mr. Bayless was especially interesting. I was raised in the Breaks on Raglan Bench and did a lot of hunting in the Breaks up and down the north side of the river and fished and swam there. In those days we drank the water right out of the river; I don't think that's possible anymore.

To me it was always the most beautiful and rugged part of the country. Maybe there are other parts more so but to me, the Breaks are home, never to be forgotten.

We left Montana 49 years ago, but the biggest part of me stayed there. I hope you people are successful in your efforts to save the Missouri and the Breaks. It is so gratifying to know that at least a part of that great river is still unspoiled by the hungry dammers and spoilers of nature. Keep them out. I know the people around that part are going to help you in your fight. The best of luck and thank you.

George Benuska
Hoffman Estates, IL

HOW TO MAKE A TERRARIUM:

# *where the world is always green*

by Louise Fenner

If you miss the beauty of the woods during the long winter months when everything is buried by snow, why not bring the woods indoors with you? It can be done with the help of a terrarium—a miniature, self-sustaining world of air, water, plants and soil captured in a glass container. A tiny woodland scene or miniature tropical forest can be at your fingertips all year long.

Terrariums require very little care once they are started. The plants live in a warm, humid environment within the closed container and are protected from dust, drafts and temperature changes. Except for occasional watering, they virtually take care of themselves. Thus, terrariums are ideal for growing delicate plants or for starting new ones under perfectly controlled conditions.

### materials

The forerunner of the terrarium was the Wardian Case, a glass box developed in England about 1850 to safeguard delicate plants being transported by ship from foreign lands. Modern terrariums are made from a wide variety of glass containers—aquariums, pitchers, apothecary jars, brandy snifters, fish globes, goblets, jugs and bottles. The size is not important as long as the plants are not crowded, but the glass must be clear, not tinted, in order to let in sufficient light. A cover is necessary to control the moisture content and humidity of the terrarium. A petri dish, an ash tray, a sheet of plastic food wrap or a piece of window glass cut to fit will all do the job.

When choosing plants for the terrarium, limit yourself to either all tropical or all woodland types. Don't mix the two because they have different requirements for light, heat and moisture. (Plants that dislike humidity, such as cacti, are not suited to terrariums.)

A greenhouse can supply small potted plants and cuttings needed for a tropical terrarium. If you decide on a woodland terrarium instead, you can easily gather the plants yourself by taking a short hike into the woods. In spring and summer you'll find the forest floor covered with mosses, lichens, ferns, evergreen seedlings, wild flowers, vines, and greenery of all kinds. The "sheet moss" that grows on flat stones and fallen logs is useful for covering up the bare spots in your terrarium "landscape." Pine cones, colored stones and pieces of twisted bark and root add interesting detail.

The ideal soil for terrariums is a porous, well-drained mixture, but not so fertile that the plants

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(Photo reprinted from *National Wildlife* with permission from the National Wildlife Federation.)

## TERRARIUM continued

outgrow the container. One source recommends a mixture of one part sand, one part peat moss or humus and one part loam, with one level teaspoon of 5-10-5 fertilizer mixed into every six-inch potful of the soil. A slightly different mixture is suggested by another source: two parts sand, two parts loam, one part peat moss or leaf mold. The idea is the same—be sure the soil is not too rich. Garden soil is not suitable because it is too heavy and retains too much moisture.

### planting the terrarium

Begin your terrarium (both tropical and woodland types) by lining the inside of the glass container with a piece of carpet or sheet moss, grassy side down. This will show through the container, hide the soil and give the terrarium a nice, green appearance.

The addition of drainage material is the next and most important step since the terrarium has no drainage hole. Place pea gravel, small pebbles, coase sand or small pieces of a clay pot, one to two inches in size, on top of the moss. The drainage material should be up to one inch thick, depending on the size of the container. Include some bits of charcoal or add a layer of powdered charcoal to keep the soil from smelling.

Next, add the soil and contour it to simulate a miniature landscape. If you want to be able to see the terrarium from all sides, mound the soil in the middle and put larger plants on the mound and smaller plants around it. If the terrarium will be seen from only one side, slope the soil upward toward the back of the container and use larger plants in back, smaller ones in front. Don't pack the soil too tightly until all the plants are in place.

Trim large root balls and prune large plants if necessary. Scoop out holes large enough to receive the plants with your fingers, a spoon, tweezers, long rod with a wire loop on the end, wire coat hanger or any utensil that will reach through the container opening. Set the plants in the holes and firm the soil around them, but don't worry if roots are not completely covered. The terrarium's high humidity will keep them from drying out. Remember the plants need room to grow so don't press them against the sides of the container or crowd them.

Now place pieces of moss wherever the soil is visible and brush plant leaves with a soft brush to clean them. Water the terrarium until the soil is completely moist and water starts to seep through the moss on the bottom. The best way to do this is to use a bulb-type syringe that sprays a fine mist and prevents spillages that could drown the plants. Wipe off the inside of the glass with a tissue and put on the cover, adjusting it so an opening allows air movement. (A pencil placed at one corner under the glass cover works well.)

### care

Place the terrarium in a well-lighted area but not in direct sunlight because the air inside could overheat and kill the plants. A north or northeast window is a good location. A woodland terrarium needs a cooler room than a tropical one.

Overwatering is the fastest way to kill a terrarium. If the glass becomes steamed, an indication of overwatering, remove the cover to allow excess moisture to evaporate. To determine if water is needed, dig down into the soil with a spoon. If the soil is dry, apply a very small amount of water and recheck the soil the next day. The terrarium will probably need only a few teaspoons of water once a month or even less frequently. (To water a sloping terrarium evenly, tilt the container so the soil is level.)

Your greatest problem is likely to be success —that is, keeping the plant growth within bounds. Do not add any additional fertilizer after planting, remove dead leaves at once and prune or remove over-grown vegetation. If a plant dies, do not pull it out since that may disturb the root system of surrounding plants. Simply cut it off at the soil line and the vacant space will soon fill in.

Your terrarium can become a unique decoration for your home or a thoughtful, very personal gift. Anyone can make one. It will be a miniature oasis to turn to when the day is rainy or cold and you want the world to be green again.

## Next Time

Watch for these features in the September/October issue of MONTANA OUTDOORS

—hunter orange
—huckleberry cookery
—migration
—waterfowl key
—game birds
—Camp Baker
—the power of women
—waterfowl quiz

# AS LAKE KOOCANUSA FILLS...

Volumes have been written on the many crises of North America's wildlife heritage and the efforts to preserve it. Nevertheless, we need to review one of the many problems facing us today as Lake Koocanusa begins to fill.

For the past 12 years we have been occupied with the problem of maintaining habitat to support a huntable game population in Lincoln County. A major portion of their winter range was destroyed and as far back as 1960 we requested a mill levy on produced power to finance game range acquisition and fish stocking. Each year since 1960 we have renewed our pleas to mitigate or compensate for the 28,000 acres of flooded river bottom, the 2,000 acres of winter range taken for highway construction and the several thousand acres consumed for railroad relocation.

In the winter of 1972-73, many game animals will find a major portion of their habitat missing. As each successive snowstorm drives them to lower elevations, they will search for the willow, chokecherry, serviceberry, bitterbrush, cottonwood trees and other river-plain browse species. A vast expanse of mud, water and ice will have replaced the vegetation.

Some wildlife will find its way to new ranges already heavily used by resident animals. Some will venture onto the ice and become easy prey for a predator that has lost its favorite mousing meadow. Some will drop through the ice as the water level recedes each day throughout the winter for power production.

Only one thing is sure—nature will make its adjustment; the price will in some way be paid. In the long run there can be no accomodation when the land and the forage it provided is lost.

We have struggled to maintain winter range since Libby Dam began. We tried when the Fisher River whitetail deer habitat was degraded by railroad relocation. We tried when elk, sheep and mule deer winter range was lost to highway alignment. And we are continuing our struggle as the water level of Lake Koocanusa swells inexorably upward.

Today we hope we can see some light at the end of the tunnel. Recent negotiations with the Corps of Engineers, along with support from elected state and federal officials, have given us cause for optimism. If current efforts are successful, money will be available to buy game range in northwestern Montana to develop primarily for wildlife and thereby compensate for lost habitat. If current efforts fail, be assured we will try again and again until our obligation to the wildlife resource is met.

We hope we will not have to face what might be the inevitable realization that nature allows little or no compensation for ecological disruptions in the magnitude of Libby Dam.

Don L. Brown

Don L. Brown

A LIVABLE ENVIRONMENT FOR WILDLIFE IS A QUALITY ENVIRONMENT FOR MAN